Fundamentals in graphene plasmons and graphene-based optoelectronic applications

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Biography

Sanshui Xiao obtained his PhD degree at Zhejiang University in 2004. In August 2004, he joined the Royal Institute of Technology (Sweden) as a post-doc researcher. In 2006, he started to work at the Technical University of Denmark, and he is now Associate Professor there. His current research interests include exploration of fundamental physics of light-matter interactions at the nanoscale and development of graphene-based optoelectronic devices. He obtained the European Optics Prize from the European Optical Society in 2008.

Fundamentals in graphene plasmons and graphene-based optoelectronic applications

With unique possibilities for controlling light in nanoscale devices, graphene has opened new perspectives to the nanophotonics community with potential applications in metamaterials, modulators, photodetectors, and sensors. I will first discuss fundamentals of graphene plasmon, e.g., plasmon-phonon coupling, graphene plasmons demonstrated in the near-infrared region and Anderson localization of graphene plasmons [1]. Then a few graphene-based optoelectronic applications with be discussed including integrated modulators and photodetectors [2-4].

References

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[4] Y. Ding, et. al., “Ultra-compact integrated graphene plasmonic photodetector with bandwidth over 110 GHz”, arXiv:1808.04815